Amendments to the Claims

Please amend claims to be as follows.

1. (currently amended) A system for power distribution of direct current (DC) power over twisted pair cabling to network devices, the system comprising:

a plurality of ~~network~~ ethernet switches each having an internal power supply and a plurality of ports grouped into a plurality of banks for connecting to the network devices via said twisted pair cabling;

an external power supply having a plurality of output ports for connecting to the ~~network~~ ethernet switches,

wherein the external power supply communicates power available to the ~~network~~ ethernet switches,

wherein each ~~network~~ ethernet switch determines amounts and priority levels of power for the network devices connected thereto, sums together the amounts at each priority level, determines additional amounts and priority levels of power required beyond the internal power supply capability, and sends a power request to the external power supply, [[and]]

wherein the external power supply allocates power to the ~~network~~ ethernet switches depending on the power requests received, and

wherein each ethernet switch includes a power multiplexer which is controllable so as to switch power from the internal power supply to one or more of the banks of ports and which is also controllable so as to switch power from the external power supply to one or more of the banks of ports.

2. (original) The system of claim 1, wherein cabling connecting the external power supply and the network switches includes a digital communications channel to communicate the power available and the power requests.

3. (original) The system of claim 2, wherein the digital communications channel comprises a serial communications channel.

4. (original) The system of claim 1, further comprising:
a programmable current sense and control unit coupled to power output for each port of the external power supply.

5. (original) The system of claim 4, further comprising:
a controller in the external power supply configured to determine the allocation of power to the network switches; and
a control bus coupling the controller to each of the programmable current sense and control units in the external power supply.

6. (original) The system of claim 1, further comprising:
a programmable current sense and control unit coupled to power output for each port of each network switch.

7. (original) The system of claim 6, further comprising:
a controller in each network switch configured to determine the allocation of available power to the network devices; and
a control bus coupling the controller to each of the programmable current sense and control units in the network switch.

8. (canceled)

9. (currently amended) The system of ~~claim 8~~ claim 1, wherein the ports are grouped into two banks, and wherein the power multiplexer is controllable to

switch power from the internal power supply to a first bank of ports, to a second bank of ports, or to both the first and second bank of ports.

10. (original) The system of claim 9, the power multiplexer is further controllable to switch power from the external power supply to the first bank of ports, to the second bank of ports, or to both the first and second bank of ports.

11. (currently amended) The system of claim 1, wherein power from the external power supply is allocated by arbitration of the power requests ~~are determined by arbitration between the network switches~~.

12. (currently amended) The system of claim 11, wherein the arbitration comprises a master-slave arbitration procedure with one ethernet switch being designated as a master and other ethernet switches being designated as slaves.

13. (currently amended) The system of claim 11, wherein the arbitration comprises a peer-to-peer arbitration procedure with none of the ethernet switches being designated as a master for the arbitration procedure.

14. (currently amended) A method of power distribution of direct current (DC) power over twisted pair cabling to network devices, the method comprising:

determining amounts and priority levels of power for the network devices connected via said twisted pair cabling to each ~~power distributor~~ ethernet switch of a plurality of ~~power distributors~~ ethernet switches;

summing together the amounts at each priority level at each ~~power distributor~~ ethernet switch; [[and]]

determining additional amounts and priority levels of power required beyond a capability of an internal power supply ~~capability~~ of each ~~power distributor~~ ethernet switch; and

communicating a power request to an external power supply.

15. (currently amended) The method of claim 14,

~~communicating a power request to an external power supply; and~~

allocating power by the external power supply to the ~~power distributors~~ ethernet switches depending on the communicated power requests.

16. (currently amended) The method of claim 14, ~~wherein the power distributors comprise network switches, and~~ wherein the available power and power requests are communicated using a serial data connection between the external power supply and each ~~power distributor~~ ethernet switch.

17. (currently amended) The method of claim 14, further comprising:

arbitration between the ~~network~~ ethernet switches to determine the power requests.

18. (original) The method of claim 17, wherein the arbitration comprises a master-slave arbitration procedure.

19. (original) The method of claim 17, wherein the arbitration comprises a peer-to-peer arbitration procedure.

20. (currently amended) A method of distributing direct current (DC) power to network devices over twisted pair cabling, the method comprising:

associating an amount and priority level of power for each device connected via said twisted pair cabling to a port of a network switch;

maintaining in the switch a table of the amount and priority level for each switch port; [[and]]

summing together the amounts of power for the devices connected to the network switch;

determining additional amounts and priority levels of power required beyond a capability of an internal power supply in the network switch;

communicating a power request to an external power supply; and

using the table to allocate available power to higher priority devices when insufficient power is available to fully power all of the connected devices.

21. (original) The method of claim 20, wherein the allocation of power is controlled using current control switches connected to the switch ports.

22. (original) The method of claim 21, wherein the allocation of power is further controlled using a power multiplexer circuit which is configured to connect to an internal power supply within the switch and to an external power supply.

23. (original) The method of claim 22, wherein the power multiplexer circuit is controllable to switch power from each said power supply to a first bank of ports, to a second bank of ports, or to both the first and second bank of ports.

24. (original) The method of claim 21, further comprising:

detecting actual power amounts drawn by the network devices using current sensors coupled to the switch ports.

25. (original) The method of claim 24, wherein if an actual power drawn from a specific port exceeds the authorized power to that port, then the current switch associated with the port is open to halt the power drawn therefrom.

26. (original) The method of claim 20, wherein the priority level of power for a switch port depends on which type of network device is connected to the port.

27. (original) The method of claim 26, wherein the higher priority devices include IP-enabled telephone devices.

28. (original) The method of claim 26, wherein the higher priority devices include at least one wireless access point.

29. (original) The method of claim 20, wherein the priority levels of power for switch ports are manually configurable into the table by a network administrator.

30. (original) The system of claim 1, wherein the external power supply and the plurality of switches are integrated into a same unit.